Physics

Time Remaining: 45/45 (Minutes)

Q.1 | Test 8 Waves | Physics Unit Wise

A source of sound wave emits wave of frequency f. If 'v' is speed of sound waves. Then what will be the wavelength of the wave

A) $\frac{v}{f}$

B) $\frac{v-u}{f}$

C) vf

D) $(v-u)f$

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Correct Answer:

A B C D

Next

Time Remaining: 44/45 (Minutes)

Q.2 | Test 8 Waves | Physics Unit Wise

The fundamental frequency of a string is proportional to

A) Inverse of the length
B) The diameter
C) Tension
D) Density

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Correct Answer:

A B C D

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Time Remaining: 44/45 (Minutes)

Q.3 | Test 8 Waves | Physics Unit Wise

The frequency of an open organ pipe is f. If one end is closed then its fundamental frequency will be:

A) f/2
B) 3f/4
C) f
D) 2f

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Correct Answer:

A B C D

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Time Remaining: 44/45 (Minutes)

Q.4 | Test 8 Waves | Physics Unit Wise

The length of a string is 1m, tension in it is 40N and mass of the string is 0.1 kg. Then the velocity of transverse waves produced in the string will be:

A) 400 ms^{-1}
B) 180 ms^{-1}
C) 80 ms^{-1}
D) 20 ms^{-1}

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Correct Answer:

A B C D

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Time Remaining: 44/45 (Minutes)

Q.5 | Test 8 Waves | Physics Unit Wise

When an observer is approaching a stationary source with a velocity vo then the apparent frequency observed by him will be:

A) $\frac{v}{v+v_o}f$

B) $\frac{v}{v_o}f$

C) $\frac{v+v_o}{v}f$

D) $\frac{v_o}{v}f$

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Correct Answer:

A B C D

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Time Remaining: 44/45 (Minutes)

Q.6 | Test 8 Waves | Physics Unit Wise

If velocity of sound in air be 350 ms^{-1}, then the fundamental frequency of an open pipe of length 50 cm is:

A) 175 Hz
B) 350 Hz
C) 700 Hz
D) 500 Hz

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Correct Answer:

A B C D

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Time Remaining: 44/45 (Minutes)

Q.7 | Test 8 Waves | Physics Unit Wise

The ratio of phase difference and path difference is:

A) 2P

B) $\frac{2\pi}{\lambda}$

C) $\frac{\lambda}{2\pi}$

D) $\frac{\pi}{\lambda}$

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Correct Answer:

A B C D

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Time Remaining: 44/45 (Minutes)

Q.8 | Test 8 Waves | Physics Unit Wise

When a light ray passes through one medium to another

A) Its wavelength changes
B) Its frequency changes
C) Both A and B change
D) None of these

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Correct Answer:

A B C D

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Time Remaining: 44/45 (Minutes)

Q.9 | Test 8 Waves | Physics Unit Wise

Doppler Effect is used to monitor blood flow through major arteries by ultrasound waves of frequency.

A) 5 Hz to 10 Hz
B) 5 MHz to 10 MHz
C) 5 kHz to 10 kHz
D) 5 GHz to 10 GHz

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Correct Answer:

A B C D

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Time Remaining: 43/45 (Minutes)

Q.10 | Test 8 Waves | Physics Unit Wise

The fixed ends of a vibrating string act as

A) Antinodes
B) Overtone
C) Nodes
D) Harmonics

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Correct Answer:

A B C D

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Time Remaining 43: 45 (Minutes)

Test 8 Waves — Physics Unit Wise

Two waves having same frequency travelling along same line in opposite direction, will produce

A) interference
B) beats
C) stationary waves
D) Doppler's effect

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Time Remaining 43: 45 (Minutes)

Q.12 Test 8 Waves Physics Unit Wise

Which graph represents the variation of waves wave length with speed

A) 

B) 

C) 

D) 

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Time Remaining 43: 45 (Minutes)

Test 8 Waves — Physics Unit Wise

Velocity of sound increases twice of its value at 0°C when temp increases

A) 313 °C
B) 819 °C
C) 859 °C
D) 80 °C

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Time Remaining 43: 45 (Minutes)

Q.15 Test 8 Waves Physics Unit Wise

Wavelength is defined as distance between two particles of medium having a phase difference

A) $\frac{\pi}{2}$ rad

B) π rad

C) $\frac{3\pi}{2}$ rad

D) 2πrad

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Time Remaining 43: 45 (Minutes)

Test 8 Waves — Physics Unit Wise

A sound wave has a λ in air at 17°C at 27°C, a wave

A) $\lambda = \sqrt{\frac{17}{27}}$

B) $\lambda = \sqrt{\frac{27}{17}}$

C) $\lambda = \sqrt{\frac{290}{300}}$

D) $\lambda = \sqrt{\frac{300}{290}}$

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Time Remaining 43: 45 (Minutes)

Test 8 Waves — Physics Unit Wise

The wavelength of the wave shown

A) 8 B) 10
C) 20 D) 30

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Time Remaining 42 45 (Minutes)

Test 8 Waves — Physics Unit Wise

If two waves of amplitude `a' produce a resultant wave of 2a amplitude, then they have phase difference of

A) 0°
B) 90°
C) 120°
D) 180°

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Time Remaining 41 / 45 (Minutes)

Test 8 Waves — Physics Unit Wise

When two wave of same frequency and constant phase difference interfere there is

A) creation of energy
B) Loss of energy
C) Redistribution of energy
D) Redistribution of energy with its total value remaining same

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Time Remaining 41 / 45 (Minutes)

Test 8 Waves — Physics Unit Wise

A 200 wave pass through a point in the medium in 1sec with a speed of 20m/s then wave length

A) 20m
B) 2m
C) 400m
D) 0.1m

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Time Remaining 41 / 45 (Minutes)

Test 8 Waves — Physics Unit Wise

How does a speed v of sound in air depend on atmospheric pressure

A) $V \propto P^{-1}$
B) $V \propto P^{1/2}$
C) $V \propto P^{2}$
D) independent P

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Time Remaining 41 / 45 (Minutes)

Test 8 Waves — Physics Unit Wise

Air column in a pipe closed at one end is in resonance with a tuning fork of frequency 264 Hz. If the velocity of sound is 332 ms^{-1}, then the length of air column is appropriately:

A) 31.4 cm
B) 62.5 cm
C) 93.8 cm
D) 125 cm

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Time Remaining: 40/45 (Minutes)

Q.29 | Test 8 Waves | Physics Unit Wise

A stretched wire with clamped ends has a fundamental frequency of 1000 Hz. What will be the new fundamental frequency if the tension in the wire increase by 2 times?

A) 980 Hz
B) 1020 Hz
C) 1010 Hz
D) 1410 Hz

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Correct Answer:

A B C D

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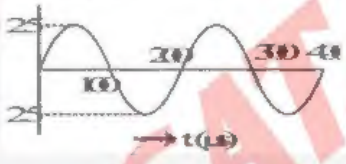
Physics

Time Remaining: 40/45 (Minutes)

Q.30 | Test 8 Waves | Physics Unit Wise

The diagram below represents the variation with time of displacement of a point in air through which a sound wave is travelling at 340 ms^{-1}. What is the frequency of the wave?

A) 1.7 Hz
B) 5.0 x 10^3 Hz
C) 1.6 x 10^4 Hz
D) 3.1 x 10^4 Hz



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Correct Answer:

A B C D

Submit Quiz

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Waves #02

Answer key

1 A 2 A 3 A 4 D 5 C 6 B 7 B
8 A 9 B 10 C 11 C 12 A 13 D 14 B
15 D 16 C 17 C 18 C 19 B 20 A 21
22 D 23 B 24 D 25 B 26 D 27 A 28 A
29 D 30 B

MCQ #04 $v = \sqrt{T/m/e} = \frac{40}{1/0.1}) \sqrt{400}$ $\boxed{20 ms^{-1}}$

MCQ #06 $f' = f \frac{nv}{2l}$ $\frac{1 \times 350}{2 \times 0.5}$ $\boxed{350 H_2}$

2π – phase difference

λ – wave length

$\frac{2\pi}{\lambda}$ – Path difference

MCQ D $v = f\lambda$ $f = same$ $\boxed{v \times 2}$

$$\frac{v}{2}$$

MCQ 13 Sound not travel in vacuum due to its mechanical nature

MCQ 19 $T' = n^2 T = (2)^2 T = 4 \times (0^\circ)$

$(4 \times 273K)$

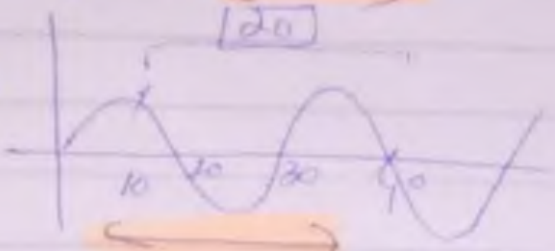
$= 1092 - 273 = \boxed{809^\circ c}$

MCQ 17 $[v \propto \lambda]$ f = same

$[\lambda \propto T^2]$ Just As speed of Sound

$\frac{\lambda_1}{\lambda_2} = \sqrt{\frac{290}{200}}$

MCQ #18



MCQ 24 $v = f\lambda$ $\lambda = \frac{v}{f} = \frac{200}{20}$ [10 m]

MCQ 25 $\lambda = 2l$ loop $= 2l$

If $n = 1$ $l = \frac{\lambda}{2} = \frac{2}{n}$

MCQ NO 28 $f = \frac{nv}{4l}$ $= \frac{1v}{l} = \frac{1v}{4f} = \frac{332}{4 \times 264}$

$= \frac{\text{approx}}{4 \times \frac{260}{3}} = \frac{8}{1}$

MCQ 29 $f \propto \sqrt{T}$ $\sqrt{2T} = \sqrt{78} = \sqrt{1000} \times \sqrt{2}$

1000×1.41 [1410]

MCQ 30 $T = 200$ microsecond $f = ?$

$v = 340 ms^{-1}$

$f = \frac{1}{T} = \frac{1}{200 \times 10^{-6}} = \frac{10^6}{200}$

$= \frac{10^3}{1} = \frac{1000}{1}$ $5000 = [5 \times 10^3 Hz]$